

# Course Syllabus – Electronics

## Assignment Code 17106

### Course Description

**Aim:** Introduce students to Electronics which is a supporting knowledge and skill in 12 of the 16 career clusters. It is the core component and central nervous system of modern manufacturing techniques and business communications. Contemporary society depends on this technology and the evolution of applied electronics continues at an ever increasing pace.

**Suggested Grade Level:** 9-12 Grade

**Length:** Year Long Course

**Prerequisites:** None

87 min. period

### Topics Covered:

- Safety
- Component usage and identification
- Calculations showing the relationship between resistance, voltage, current and power
- Circuit fundamentals
- Career Exploration

### Instructional Philosophy and Delivery Plan

**Expectation:** Students will be expected to meet all the course goals by demonstrating their understanding of the basic concepts of each topic area. In order to pass the course students will need a minimum of 70%.

**Delivery Method:** Instruction will consist of lecture, real world work environments, individual activities and projects, group work, discussion, and reading.

**Community Involvement:** Guest speakers from local industries will be brought in throughout the course. Learning trips will be taken for various units in the course.

**Assessment:** Students will be graded on the following items: written assessments, practical skill demonstrations/assessments, daily appraisal of work related soft skills, and individual projects.

## Course Standards

ELTRON1.1. Employ appropriate units and abbreviations  
ELTRON1.2. Determine unknown values in multiple types of electronic circuits  
ELTRON1.3 Identify proper terminology and examine career possibilities  
ELTRON2.1. Determine physiological responses to electrical shock  
ELTRON2.2. Demonstrate proper safety procedures in the use of soldering and test equipment  
ELTRON3.1. Construct a circuit using schematic symbols for identified components.  
ELTRON3.2. Construct circuit board using correct soldering principles and techniques  
ELTRON3.3. Determine cause of non-operational circuits  
ELTRON4.1. Measure resistance, voltage, and current in circuits  
ELTRON4.2. Classify equipment for signal analysis  
ELTRON5.1. Calculate and measure, voltage, current, and power solutions in circuits  
ELTRON5.2. Troubleshoot solutions to analyze circuit operation  
ELTRON6.1. Research career opportunities in the electronics field

## Major Course Projects

- \* Convert whole number expressions to appropriate electronics exponential expression
- \* Differentiate between electronics exponential expression from scientific notation
- \* Calculate unknown electronic unit values using given or measured values
- \* Apply appropriate formula to solve of unknown values in a variety of circuits
- \* Construct various circuit configurations on temporary circuit board
- \* Connect components in proper position on circuit board
- \* Construct selected circuits on printed circuit boards using soldering techniques
- \* Select and correctly use test equipment for troubleshooting of faulty circuits

## Assessment Plan & Grading Scale

Grade	Scale	Description of Work
<b>A</b>	<b>94-100%</b>	Consistently demonstrates an exceptional level of quality and effort. Having all work in on time and completed to exceed expectations. Mastery in evaluating, synthesizing, and applying the knowledge.
<b>B</b>	<b>86-93%</b>	Consistently demonstrates proficient knowledge with good quality of work. All assignments are complete and on time. Demonstrates ability to evaluate, analyze, synthesize and apply the principles.
<b>C</b>	<b>78-85%</b>	Demonstrates proficient knowledge and ability to apply knowledge. Work shows average effort. Few assignments missed or late.
<b>D</b>	<b>70-77%</b>	Work shows minimal effort and late assignments. Demonstrates a basic understanding of recalling or comprehending knowledge
<b>F</b>	<b>Below 70%</b>	Understanding is below basic. Work is of poor quality and does not meet standards or expectations.